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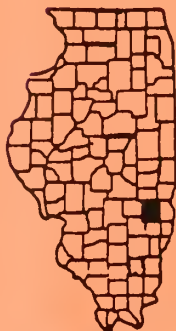
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# FLOODPLAIN MANAGEMENT RECONNAISSANCE STUDY REPORT

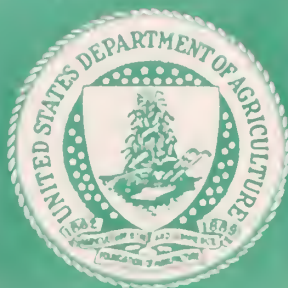
## NEWTON JASPER COUNTY



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CITY OF NEWTON  
JASPER COUNTY, ILLINOIS  
FLOODPLAIN MANAGEMENT  
RECONNAISSANCE STUDY

Prepared By

U.S. Department of Agriculture  
Soil Conservation Service  
Champaign, Illinois

In cooperation with

STATE OF ILLINOIS  
Department of Transportation  
Division of Water Resources

December 1984

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CITY OF NEWTON  
RECONNAISSANCE STUDY

INTRODUCTION

Use of floodprone areas can be a severe problem in Illinois. Urbanization and floodplain encroachment are increasing the severity of this problem. Over 800 communities in Illinois have been identified as having flooding problems.

The Illinois Division of Water Resources (DWR) is the responsible state agency for urban flood control and for setting priorities of flood studies within urban areas. The Soil Conservation Service is providing assistance to the Division of Water Resources in setting these priorities. A joint coordination agreement was executed between the Division of Water Resources, State of Illinois, and the USDA, Soil Conservation Service on April 30, 1976 and revised in December 1978 to furnish technical assistance in carrying out Flood Hazard Studies. These studies are carried out in accordance with Federal Level Recommendation 3 of "A Unified National Program for Flood Plain Management," and under Section 6 of Public Law 83-566. A plan of study was executed in October 1983 for reconnaissance studies for 15 Illinois communities. These reconnaissance studies will utilize existing floodplain information, historical high water profiles, and the 100 year floodplain from flood insurance studies when available. Average annual damages are estimated for the structures within the floodplain.



This study was conducted and the report provided for the purposes of:

1) To evaluate needs for additional future studies, 2) to estimate average annual damages, 3) to provide an updated estimate of the 100 year floodplain and map, and 4) to provide guidance and recommendations to the community for improved floodplain management.



### STUDY AREA DESCRIPTION

The city of Newton is located in Jasper County, Illinois, approximately 24 miles southeast of Effingham. The population of Newton is 3,186, according to the 1980 census.

Transportation facilities within the area consist of the Illinois Central Gulf Railroad, which has north-south and east-west lines, and Illinois Highways #130 and #33. Route 130 runs basically north and south while Route 33 runs east and west. By using various county blacktop roads, several communities are accessible from Newton.

While several oil wells are in the vicinity of Newton, agriculture is still the main business enterprise. Corn, soybeans, wheat, and double crop soybeans following early wheat removal, is the primary rotation. Several small pastures are also located throughout the area. The area around Newton has had several small farm ponds constructed which at one time were used for livestock watering.

Even though some livestock still remains, the number of farms with livestock is much lower than it was 20 years ago. Some of these ponds are now used more for recreation instead of livestock watering.

The predominate soils in and around Newton are in the Cisne, Hoyleton, and Ebbert association. The area along the Embarras River and the steeper uplands are in the Hickory, Bluford, and Blair association.



These soils are formed in loess and glacial drift and are poorly and somewhat poorly drained. They also have high to moderately high ground water tables. The soils information is from the General Soils Map of Jasper County, published in 1971. At the present time, a modern soil survey for Jasper County is in progress.

The drainage area of the Embarras River at U.S.G.S. Gage #03345000 at Newton is 1,392 square miles. The drainage area of the center tributary or Beezer Creek, is 1.2 square miles. The drainage area of the west tributary is 1.8 square miles. The drainage is in the Wabash River Basin, hydrologic unit #05120112, Beezer Creek subwatershed #090. The average rainfall for the area is approximately 45 inches, but has ranged from 30 to 70 inches.

#### NATURAL VALUES

The Embarras River, as well as several smaller ditches and streams in the area, are predominately tree and brush lined. Crop fields are small to moderate in size with many old fence lines separating the different fields. Several of these areas have also grown up with trees and brush.

An unusually high number of small farm ponds are located in the area around Newton. Originally, these were for livestock watering, but now serve mainly as recreation areas. Most of these areas have small





pastures associated with the ponds and some have several trees in the vicinity.

Newton Lake is a large body of water, approximately 2,000 acres, that was developed as a cooling area for the Baldwin Power Plant. Recreation, such as fishing, is another big use for this lake.

The interspersed land use and associated types of habitat provide an outstanding environment for a wide range of animal species. The large variety of plant and animal species present generally make the area a pleasant place for people to live, work, and play.



## FLOOD PROBLEMS

Flooding along the Embarras River can be from a large volume of runoff many miles from Newton. This can and sometimes does happen at any time during the year. The watershed starts approximately 90 miles north of Newton. For most of this area, the Embarras River is fairly shallow and the banks are also very low. Rapid runoff from many acres of agriculture land, cities and villages, causes many problems for the Embarras River, and the communities located along its route. At times, vast areas of agricultural land become shallow holding areas until the river recedes. The elevation towards the city rises very quickly from the river, causing most of the flooding in the Newton area to be on the low agriculture cropland to the north side of the river. Therefore, minimal damage to the city results.

Flooding along the west tributary does not seem to be a major problem at this time. However, flooding of the center tributary, or Beezer Creek, does cause problems for the residents of Newton. This flooding is primarily caused by heavy local rainfalls over a relatively small watershed and is generally of a short duration. Beezer Creek outlets into Brush Creek, which eventually drains into the Embarras River.

Beezer Creek has very limited capacity and does not convey water efficiently. At some locations, the ditch becomes a closed drain, with the use of corrugated metal pipe or concrete tile. By this method, the water is held back in some areas and either ponds or causes



shallow flooding at the beginning of the closed drain. This flooding lasts only until the flow can get into the closed drains.

The city has installed a lift station on Decatur Street, near First Avenue that is partially blocking the culvert at Scott Street. Also at this point, the railroad fill has reduced the channel size which also caused water to back up. In this area, four homes are subject to damages from this water. The channel above the railroad by the Rafter Factory has very little capacity, which results in flooding of the factory.

The outlet ditches, Beezer Creek and Brush Creek, are clogged with trees and brush with debris in the channels. These clogged channels and the undersized drains increase the magnitude of flooding.

The city does have a sewage treatment plant and some homes scattered throughout the city still have a septic system in operation. Since most of Newton is located on poor or somewhat poorly drained soils, these old systems will not function properly during wet conditions. Consequently, they contribute to the ponded and standing water that is stale and foul smelling. The city is in the process of setting a priority to have the entire community connected to the sewage treatment plant. This will be done as soon as possible, without putting anyone into financial difficulty, if possible. Approximately 70 percent of the sewer flow is accomplished by means of using "lift



stations". The city is working very hard to update, enlarge, and expand onto the existing sanitary facilities.

#### PROBLEM SUMMARY

Estimated average annual damages from flood waters and ponded areas to the city of Newton are as follows:

Embarras River flooding

4 homes, 5 garages or sheds, 4 businesses

Total Value \$494,500 - Average Annual Damages = \$1,900

Beezer Creek flooding and water problems:

15 homes and trailers, 9 garages and sheds, 5 businesses

Total Value \$999,000 - Average Annual Damages = \$3,400

Subtotals = 19 homes or trailers, 14 garages or sheds, 9 businesses

Total Value \$1,493,500 - Average Annual Damages = \$5,300

Yard damages - due to wetness - 100 units @ \$50	\$5,000
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Yearly septic system expenses - due to wetness	1,800
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Basement damages - due to wetness (35 units @\$100)	<u>3,500</u>
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Total additional expenses =	\$10,300
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Total estimated average annual damages for Newton	\$15,600
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It is estimated that flooding starts at the 25 year frequency storm.







#### EXISTING FLOODPLAIN MANAGEMENT

The city of Newton has participated in the Emergency Phase of the National Flood Insurance Program since December of 1978. Emergency flood insurance is available to business and homeowners. Newton does require building permits, as zoning ordinances are in effect.



### RECOMMENDATIONS

The city should continue to participate in the National Flood Insurance Program. This would help prohibit the construction of excavated crawl spaces, one-half, and full basements in the area of the city subject to water problems. A soil survey for Jasper County is in progress and will soon be available. This information can be used to guide construction of homes and businesses.

The septic systems presently in use must be kept in good working order. Poorly functioning systems could cause standing water and could create a health hazard for the community. It is recommended that all home and business properties be connected to the city's sanitary sewer system.

The city should continue to work on the existing drainage system of the Beezer Creek area. Proper size and clean ditches and pipes will help remove the surface water at a rate that will minimize temporary flooding. This should be an on-going program to take care of any minor problems as they may occur.

The drainageways in and below the city should be kept as free as possible from trees, brush, and debris. It is recommended that the city develop channel maintenance programs for the drainageways in Newton. These plans would include maintaining a proper sized channel to preserve present and future flow capacities. The city should make



periodic visual inspections to determine unsafe conditions and needed maintenance work or improvements.

Embarras River flooding will be difficult to control. New construction or extensive remodeling without flood control measures, should not be allowed. Present average annual damages in this area are fairly low, and construction limitations will help keep them at the present level. The properties that now flood could be flood proofed to further reduce damages from the Embarras River overflow.

The city should make efforts to keep all surface water out of the sanitary sewers. All sump pump water should also be kept from entering the system. These additional waters could overload the system and would increase the operating costs for the city by treating water that should not be in the system.

The State of Illinois should assign a low priority to any detailed flood studies for Newton.



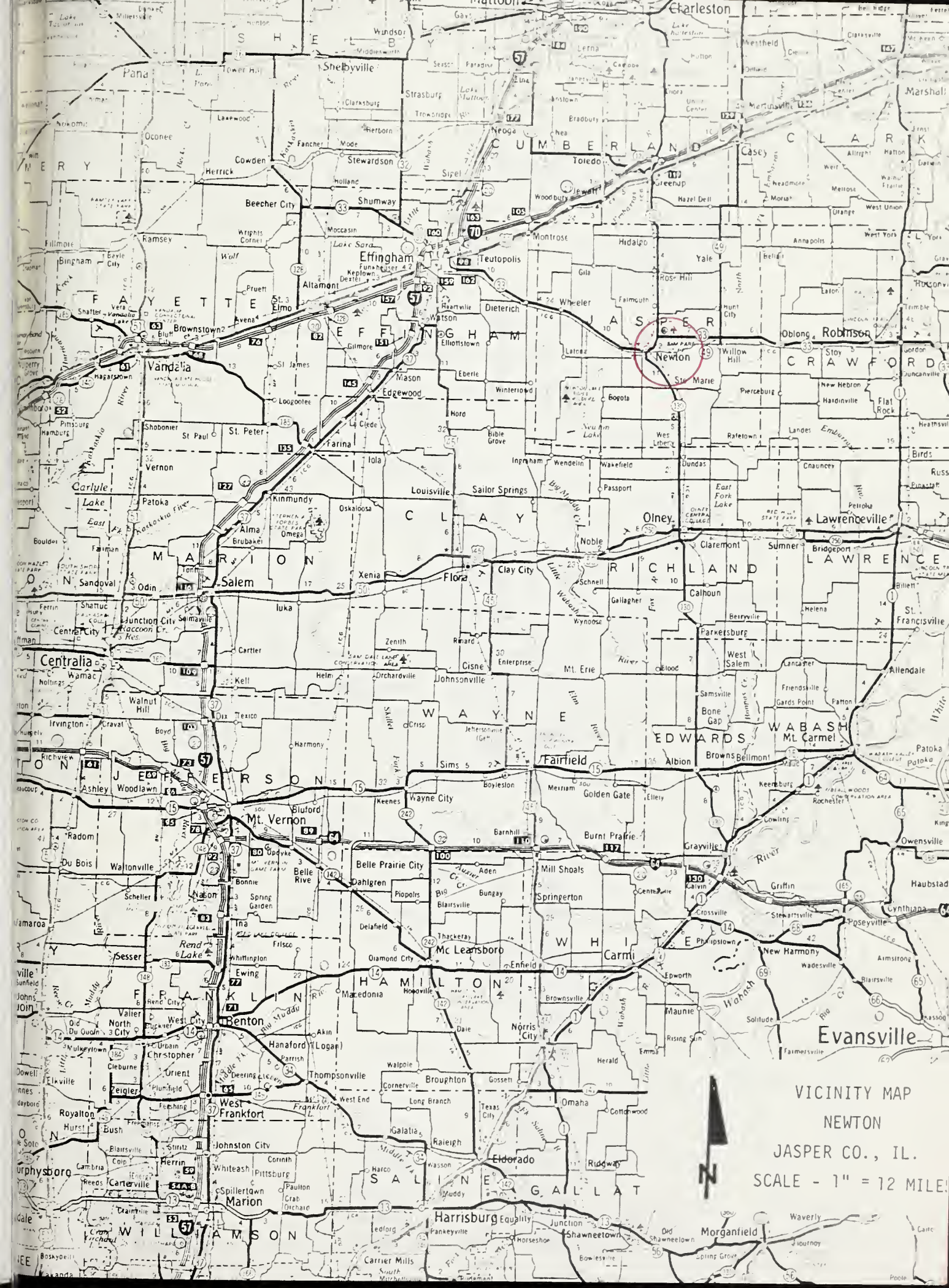
## INVESTIGATION AND ANALYSIS

No additional calculations, discharges, or profiles were made as a part of this report. The 100 year floodplain was determined by interviews, field reviews, topography maps, and the 1976 Flood Hazard Boundary Map for the city of Newton. Aerial photographs were provided by the Division of Water Resources. Damages were based on property value estimates during field review, and the application of damage factors. These factors came from previous detailed floodplain management studies.

RGS:ceb:WS-4:9







VICINITY MAP  
NEWTON  
JASPER CO., IL.  
SCALE - 1" = 12 MILES











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